1. Introduction and Background

1.1 Overview and background information on the state and its regions.

The State of Montana is comprised of 145,552 square miles making it the fourth largest state in the country. With a population of 944,632, it ranks as the 44th lowest in the nation. It has more than 550 miles of border with three provinces of Canada (Alberta, British Columbia, and Saskatchewan) which includes 14 border crossings and ports of entry. The state receives more than eight million visitors annually to parks and its blue ribbon fishing rivers. There are 1,225 miles of major interstate arteries, 2 national parks, 200 nuclear missile sites, 1 Level 4 biological facility, and 14 Superfund sites. Politically, the state is made up of 7 Indian Nations, 56 counties and 129 municipalities. Only seven cities have a population over 10,000: Billings, Bozeman, Butte-Silver Bow, Great Falls, Helena, Kalispell and Missoula. Seventy-three municipalities have fewer than 1,000 residents; 47 municipalities have fewer than 500 residents; and five municipalities have fewer than 100 residents. The responder community in Montana consists of 3,400 police; 7,000 EMS personnel; and 8,000 firefighters, park rangers and visiting responders that include federal and regional fire teams, the National Guard and federal law enforcement (FBI, BLM, HLS).

Metro and Non-Metro Counties in Montana

Based on the most recent listing of core based statistical areas by the Office of Management and Budget (December 2005), four counties in Montana are part of metropolitan statistical areas, and six counties are part of "micropolitan" areas, a term that includes urban areas with populations between 10,000 and 49,999 plus surrounding counties that are linked through commuting ties. These areas often represent important economic and trade centers in rural areas. These counties previously were included in the non-metropolitan category. The remaining 46 counties in Montana are considered non-core counties. Using these classifications and the population estimates for 2005, 34.9 percent of Montana residents live in metropolitan areas, 30.0 percent live in micropolitan areas, and 35.2 percent live in non-core areas.

Figure 1: Metro and Non-Metro Counties in Montana.

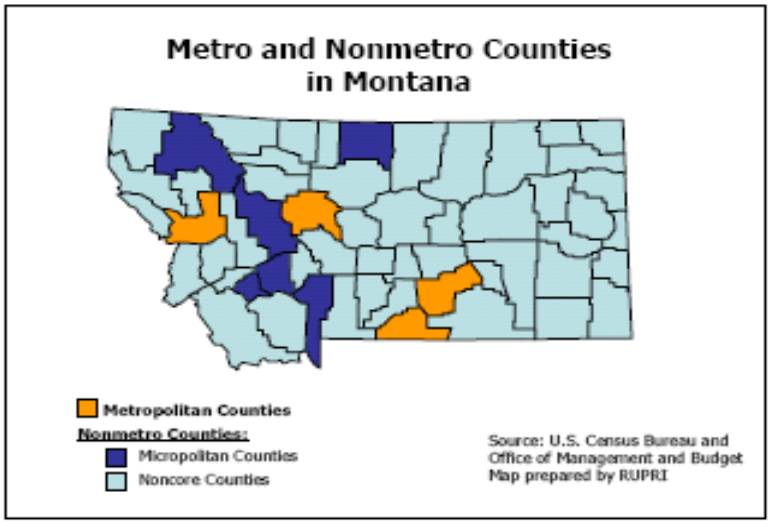
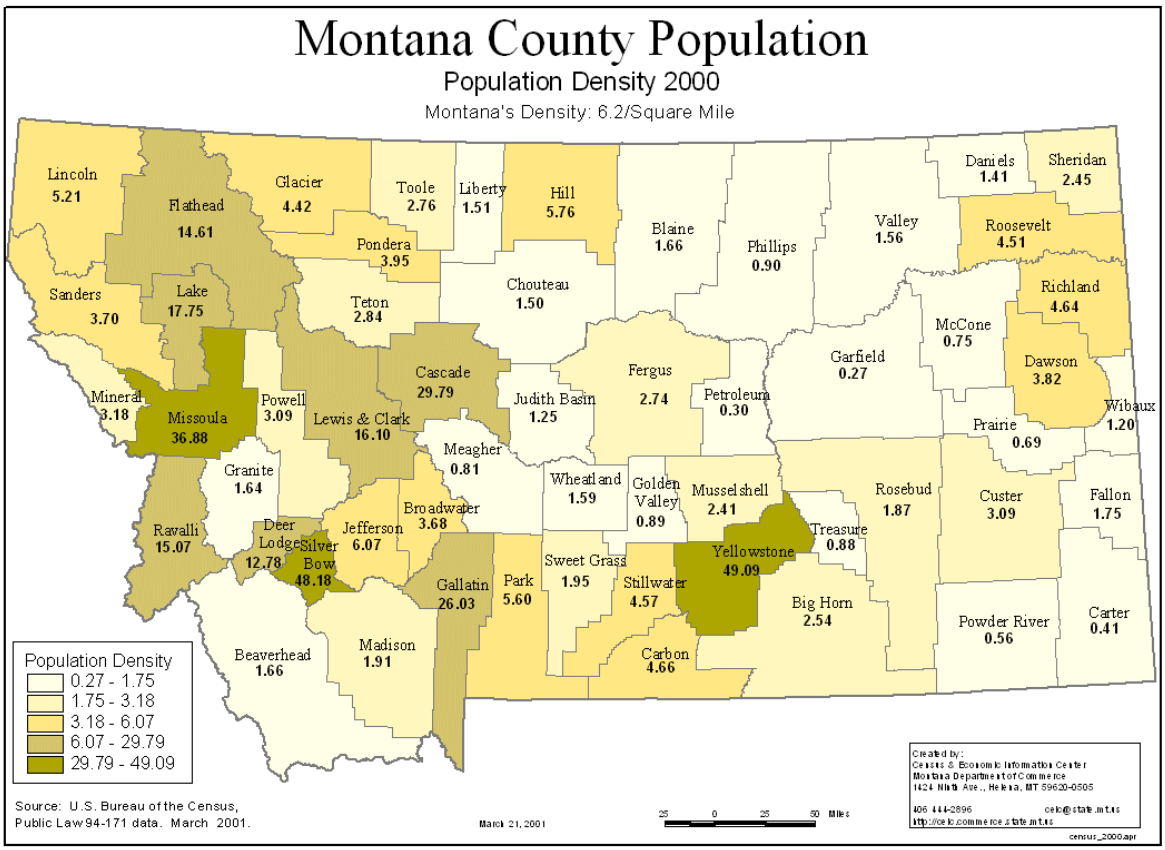


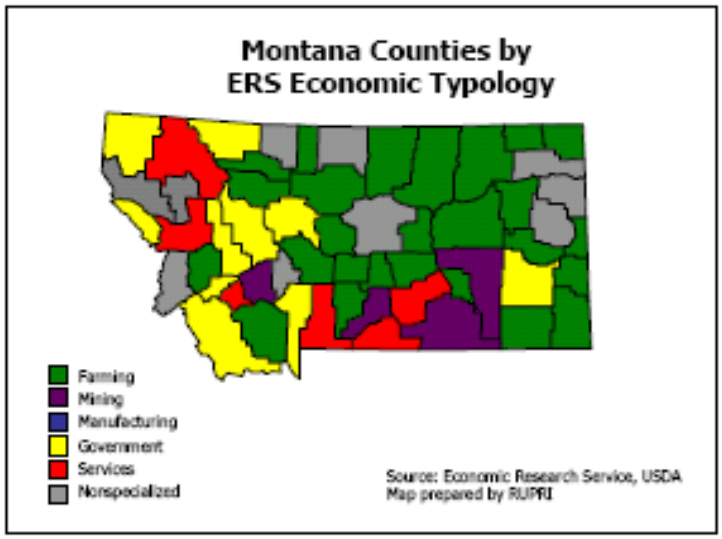
Figure 2: Montana County Population



Agriculture

Agriculture is an important industry in many parts of the state. Twenty-six counties are classified by the Economic Research Service as “farming dependent”.

Figure 3: Montana Counties by ERS Economic Typology



Geography

Geographically the state is located in the 4th most active seismic region of the country. The Rocky Mountain Region is always in danger of earthquakes due to faults that run through the area. Naturally occurring threats to the state include not only earthquakes, but also forest fires, droughts and floods. Montana can be divided into two geographic areas in general. The eastern three-fifths of Montana is covered by the Great Plains and the western two-fifths is part of the Rocky Mountain Region.

The Great Plains of Montana is part of the Interior Plain of North America that stretches from Canada south to Mexico. The Great Plains are made of high, gently rolling land interrupted by hills and wide river valleys, including the Yellowstone and Missouri Rivers. Groups of mountains spring up from these plains: the Bear Paws, Big Snowy, Judith, and Little Rocky Mountains. In the southeast, badlands created by wind and water erosion, have resulted in stunning geological forms.

The Rocky Mountain Region of Montana is covered by flat, grassy valleys and mountains covered in fir, spruce, pine and other evergreens. The southwest valleys are between 30 to 40 miles wide, while northern valleys are narrower: between 1 to 5 miles wide. Many of the mountains are covered with snow for 8 to 10 months of the year, and a few active glaciers are located in the higher altitudes. Montana's Rocky Mountains are known for their clear, cold lakes. More than 50 mountain ranges are in this region, including the Absaroka, Beartooth, Beaverhead, Big Belt, Bitterroot, Bridger, Cabinet, Crazy, Flathead, Gallatin, Little Belt, Madison, Mission, Swan, and Tobacco Root ranges. Granite Peak, the highest point in Montana, rises 12,799 feet above sea level in south-central Montana.

The Continental Divide runs through the Rocky Mountain Region. Montana is the only state that has rivers that drain into the Gulf of Mexico (Missouri River system), Hudson Bay (Belly's, St. Mary's, and Waterton Rivers) and the Pacific Ocean (Columbia River system).

1.2 Agencies and organizations that participated in developing the plan.

Consortium Development

In concert with national homeland security priorities, interoperable communications is Montana's second highest state homeland security priority next to information gathering. To many local and state responders, interoperable communications is the highest priority. In 2004, the Department of Administration (DOA), Information Technology Services Division (ITSD), Public Safety Service Bureau (PSSB), along with the Montana Disaster and Emergency Services (DES), initiated a process to facilitate the vision and development of interoperability to be fostered and led on the local level. Local representation from the county and tribal level came together, forming into eight Interoperable Voice Consortia, representing 56 counties and 7 Tribal Nations. In addition, a ninth consortium (Mobile Data Terminal Consortium) was created to facilitate the development of an interoperable mobile data system in cooperation with two State of Montana agencies, the Montana Highway Patrol and the Montana Department of Transportation. Consortium members routinely meet on a monthly basis. Each consortium board of directors is made up of county commissioners; chief elected and appointed law enforcement officials, fire services and other key elected and appointed city and county officials.

In 2005, directors from the eight voice and one mobile data consortia came together to form the Interoperability Montana Project Directors Board (IMPD). The IMPD, along with its designated Technical Committee, provides direction and priority for development of the connected, statewide system. At this level, and to a lesser degree the consortia level, state and federal partners participate with planning and implementation steps.

This grassroots organizational structure has resulted in positive outcomes in the organization and implementation of interoperable communications in Montana, with the vision of having a fully functional statewide system with active local, state, tribal and federal users. Great progress has been seen, primarily due to the leadership from the local level. To make sure Montana is effective in implementing wireless interoperability systems and procedures, it is developing workable solutions based on the achievements and "lessons learned" to date.

Figure 4: Map of Planning Regions

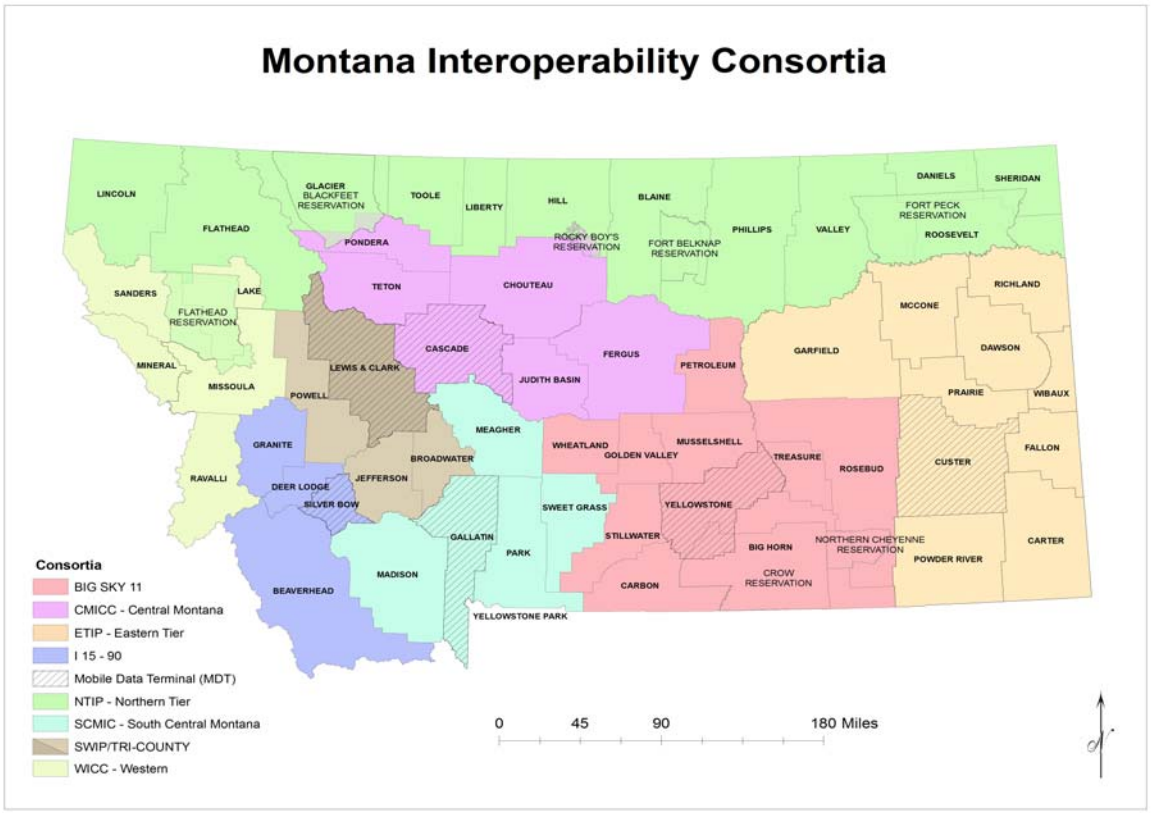


Table 1 on the following page provides a list of the regions within the state and lists the jurisdictions included in each region:

Table 1: Montana Regions and Their Jurisdictions

Big Sky 11	*Central Montana*	*Eastern Tier*	*I-15-90 Corridor*
• Big Horn County • Carbon County • Crow Reservation • Golden Valley County • Musselshell County • Northern Cheyenne Reservation • Petroleum County • Rosebud County • Stillwater County • Treasure County • Wheatland County • Yellowstone County	• Cascade County • Chouteau County • Fergus County • Judith Basin County • Pondera County • Teton County • Rocky Boys Reservation	• Carter County • Custer County • Dawson County • Fallon County • Garfield County • McCone County • Powder River County • Prairie County • Richland County • Wibaux County	• Anaconda/Deer Lodge County • Beaverhead County • Butte/Silver Bow County • Granite County

Northern Tier	South Central	*Tri-County/South Western*	*Western*
• Blaine County • Blackfeet Reservation • Daniels County • Flathead County • Flathead Reservation • Fort Belknap Reservation • Fort Peck Reservation • Glacier County • Hill County • Liberty County • Lincoln County • Phillips County • Roosevelt County • Sheridan County • Toole County • Valley County	• Gallatin County • Madison County • Meagher County • Park County • Sweet Grass County	• Broadwater County • Jefferson County • Lewis & Clark County • Powell County	• Lake County • Mineral County • Ravalli County • Sanders County

Parties Involved

Because of lessons learned from previous attempts to develop interoperable systems, the Department of Administration (DOA), Information Technology Services Division (ITSD), Public Safety Service Bureau (PSSB), along with the Montana Disaster and Emergency Services (DES), initiated a process to facilitate the vision and development of interoperability fostered and led on the local level. Local representation from the county and tribal level came together, forming into eight Interoperable Voice Consortia, representing 56 counties and 7 Indian Nations. In addition, a ninth consortium (Mobile Data Terminal Consortium) was created to facilitate the development of an interoperable mobile data system in cooperation with two State of Montana agencies, the Montana Highway Patrol and the Montana Department of Transportation.

Each of these regional consortia, representing local leadership, has completed a comprehensive needs assessment that included the following scope:

- The system will provide advanced digital, secure voice and data communications for public safety.

- The system will be based on current Federal and state communications standards (ODP, Statewide Interoperability Executive Council (SIEC) & Project 25) in which local, tribal, state and Federal public safety and emergency management representatives can operate autonomously and transition seamlessly to communicate effectively in an all-hazard emergency mission role.

The Interoperability Montana (IM) Project is a partnership of local, state, tribal and Federal response agencies committed to improving and expanding interoperable communications throughout Montana. The partners are divided into three main categories: 1) Regional Consortia (representing local and tribal interests); 2) State of Montana Agencies (representing all levels of state radio users); 3) Federal and Private Partnerships.

1. Consortia

The IM Project consists of eight consortia and one mobile data terminal consortium, each with one voting membership on the Interoperability Montana Project Directors (IMPD). A site map of consortia is included above. As part of the IM Project, each of these consortium have agreed to work together and advance the development of interoperable communications infrastructure according to the priorities and funding established by the IMPD. The IMPD is a dynamic, cohesive group dedicated to the deployment of Montana-wide communications interoperability for public safety responders. Communications needs not addressed by the IMPD may be developed by the consortia, or individual agencies, as their own priorities and funding allow. The following is a list of IM Consortia:

Big Sky 11

The 12 jurisdictions making up the Big Sky 11 Consortium include Big Horn, Carbon, Golden Valley, Musselshell, Petroleum, Rosebud, Stillwater, Treasure, Wheatland and Yellowstone Counties and the Crow and Northern Cheyenne Reservations. These jurisdictions are jointly investigating the challenge of interoperable communications as it applies to the entities within jurisdictions that need to communicate.

Big Sky 11 seeks to implement a plan to alleviate the needs and shortfalls identified in this investigation with the goal of providing local law enforcement agencies, emergency response agencies, public works, public health, and medical facilities with the communications tools needed to communicate securely with the new Federal Government Communications Radios and provide a seamless network for the dissemination of database information between Federal, state and local law enforcement.

This consortium includes the state designated 2006 Metropolitan area (City of Billings/ Yellowstone County) for development of Montana's Tactical Interoperable Communications Plan (TICP).

The Big Sky 11 needs assessment has been used in the statewide planning process for infrastructure development.

Central Montana Interoperability Communications Consortium (CMICC)

Cascade County, the Chippewa Cree Tribe (Rocky Boy's Reservation), Chouteau County, Fergus County, Judith Basin County, Pondera County and Teton County have formed the Central Montana Interoperable Communications Consortium (CMICC), and have conducted a needs assessment of the current communications environment and are in the process of implementing interoperable communications solutions.

The project has assessed radio communications needs and capabilities of consortium members, both collectively and individually, and has been defining a comprehensive implementation strategy aimed at achieving a reliable, effective and fully interoperable communications system within and between the counties; between the Northern Tier Interoperable Project and the Southwestern Interoperability Project as well as among all local, tribal, state and Federal entities involved in emergency management and response.

Eastern Tier Interoperability Consortium (ETIC)

The ETIC, in eastern Montana, includes Carter, Custer, Dawson, Fallon, Garfield, McCone, Powder River, Prairie, Richland and Wibaux Counties. The ETIC has approximately 40,448 residents, covering roughly 26,434 square miles. The ETIC borders North Dakota, South Dakota and Wyoming, and is working to improve interoperable communications with these neighboring systems.

The Eastern Tier Interoperability Consortium's (ETIC) goal is to develop a multi-agency interoperable communications system between law enforcement, fire services, and Emergency Medical Services (EMS) that will improve coverage and dependability by upgrading existing radio equipment to Project 25 standards and coordinating local, tribal, state and Federal stakeholders.

I-15/90 Corridor Interoperability Communications Consortium (I-15/90)

Four counties (Anaconda-Deer Lodge, Beaverhead, Butte-Silver Bow and Granite) have formed the I-15/90 Corridor Interoperable Communications Consortium to conduct a needs assessment of the current communications environment and implement an interoperable communications strategy. The project assessment is defining a comprehensive implementation strategy aimed at achieving a reliable, effective and fully interoperable communications system between the Southwestern Interoperability Project and Missoula; and between all local, tribal, state and Federal entities involved in emergency management and response.

Mobile Data Terminal Consortium (MDT)

The Mobile Data Terminal (MDT) Consortium is a user group comprised of the Montana Highway Patrol, Montana Department of Transportation and municipal/county law enforcement representatives from Butte/Silver Bow, Cascade, Custer, Gallatin, Lewis and Clark and Yellowstone Counties. The purpose of this group is to enhance opportunities for law enforcement and other public safety agencies to access and utilize wireless mobile data systems. Only the above counties have access to the system. Current planning is to expand access to areas following the build-out of the IM backbone. All members of the MDT Consortium are members of a voice consortium.

Northern Tier Interoperability Consortium (NTIC)

Blaine, Daniels, Flathead, Glacier, Hill, Liberty, Lincoln, Phillips, Roosevelt, Sheridan, Toole and Valley Counties as well as the Blackfeet, Confederated Salish and Kootenai, Fort Belknap and Fort Peck Indian Nations signed letters of intent to form the Northern Tier Interoperability Consortium (NTIC) to set the basic framework for providing secure communications capability between local, state, tribal, and federal public safety agencies. Montana's Northern Tier Interoperability Project (NTIP) was initially established to provide a consolidated radio system for law enforcement purposes. With more than 550 miles of border with Canada, Montana law enforcement officials have critical communications interoperability requirements between levels of government and across jurisdictions. The NTIP radio system will provide advanced digital, secure voice and data communications for law enforcement interoperability across this vital border region. It will also improve homeland security by providing the means for military and civil authorities to communicate by radio. The Montana National Guard's homeland security mission will be enhanced through highly reliable, redundant communications capabilities to its Highline armories.

Several partners have projects already underway and NTIP will interconnect standards-based systems to make the most of existing resources, extend them to neighboring cooperators, and expand capabilities not only for law enforcement agencies, but also for EMS, fire and other public safety service providers. The Montana National Guard's homeland security mission will be enhanced through highly reliable, redundant communications capabilities to its Highline armories.

South Central Montana Interoperability Consortium (SCMIC)

The South Central Montana Interoperable Consortium (SCMIC) is composed of Gallatin, Madison, Meagher, Park and Sweet Grass Counties. The goal of the SCMIC is to evaluate the capabilities and needs of public safety agencies in the consortia and work with the IM Project to build a cost-shared, reliable, and effective network providing wireless voice communications between all levels of government and all types of public safety services.

Tri-County Interoperability Consortium

Broadwater, Jefferson, Lewis and Clark and Powell Counties along with the State of Montana Department of Corrections have formed the Tri-County Consortium (TIC). This is an ongoing, collaborative process, with the Powell County Sheriff's Department as the lead agency. Upgrading existing radio systems to P25 trunking capability will include project management, mobile units, handheld portable units, programming and major infrastructure improvements for repeaters, microwaves, towers and building improvements. The Southwestern Interoperability Project (SWIP) that Lewis and Clark County recently completed covers a large portion of the Tri-County area and uses P25 standard trunked and conventional technology. The TIC recognizes that P25 alone will not insure interoperability and intends to develop a frequency utilization plan for first responders and make certain that key elements such as the Mutual Aid and Common Frequencies (colored frequencies) are incorporated. TIC will consult with neighboring consortia to identify other common channels that will enhance mutual aid interoperability.

Western Interoperability Consortium (WICC)

The WICC, in western Montana, includes Lake, Mineral, Ravalli and Sanders Counties. The WICC has approximately 55,720 residents, with 7,872 square miles. The WICC borders Idaho, SWIP, I-15/90 and the NTIP, and is working to improve interoperable communications with these neighboring systems.

The Western Interoperable Communications Consortium's (WICC) goal is to develop a multi-agency interoperable communications system between law enforcement, fire services, and Emergency Medical Services that will improve coverage and dependability by upgrading existing radio equipment to Project 25 standards and coordinating local, state and Federal stakeholders. Members of the consortia primarily consist of local representatives from law enforcement, disaster and emergency services managers, fire and others agencies.

2. State of Montana Representation

The State of Montana is an active participant in the IM Project through support and active participation roles. In addition, the IMPD voted in November 2006 to extend voting membership to three state agencies: Department of Justice (Montana Highway Patrol), Department of Natural Resources and Conservation and the Department of Transportation. The following summary describes the participation and interest of these and other Montana agencies.

Montana Highway Patrol

The project will provide increased communications capability for Montana Highway Patrol (MHP). The Mobile Data backbone will provide extended coverage for the MHP who has a cooperative effort ongoing with counties and cities in the State of Montana for a shared mobile data infrastructure. The microwave backbone can provide interfaces to remote sites for direct connection back to central dispatch. The project will also provide the ability for MHP to directly communicate with all the tribal and local dispatch centers across the state and provide the basis for sharing of criminal information across jurisdictional boundaries.

The MHP has already committed resources to provide microwave system maintenance for the Lewis and Clark County, Northern Tier and initial IM Project build-out. It is anticipated that additional state commitment for development and maintenance will come in the near future. The MHP is accepting these resources on behalf and remain under the control of the IM project.

Montana Department of Natural Resources and Conservation

The Forestry Division of Montana's Department of Natural Resources and Conservation (DNRC) is dedicated to sustaining and protecting lives, property and natural resources through wildfire prevention; training; preparedness; and safe, aggressive suppression actions.

The DNRC radio communications system backbone is funded by Fire and Aviation Management and is designed primarily for fire detection and suppression. DNRC coordinates and fights fire in remote, rugged areas where radio coverage is a primary issue. Fire fighting activities are dangerous by their very nature. Loss of communications because of inadequate radio coverage or poor equipment not only increases the threat to personnel deployed to a site, but it also is a direct endangerment of the lives of DNRC fire fighters as well as those of other local, state, tribal and federal agencies participating on a site.

In Dec, 2006, DNRC became a voting member of the IM Project Directors (IMPD) board. DNRC has identified a substantial need for improvements in its radio coverage and P25 subscriber units, both of which require substantial funding. A fiscally pragmatic solution is to leverage its relationship with the Interoperability Montana Project to achieve mutually beneficial results. In light of the changing national security situation, DNRC's role in All-Risk incident assignments, regardless of jurisdiction or emergency declaration, has expanded.

Montana Department of Transportation

The project will provide the Montana Department of Transportation (MDoT) with backhaul capabilities for future intelligent transportation highway systems. Interoperability is not just voice communications, but it also allows for communications between law enforcement agencies and DOT for monitoring and alerting the public to dangerous situations. The Mobile Data portion of the system can also be used by various agencies identified through the DOT to track commercial carriers.

Public Safety Services Bureau

The Department of Administration, Information Technology Services Division (ITSD), Public Safety Services Bureau (PSSB), supports the IM Project through administrative, technical and funding support. Though not a voting member of the IMPD, the PSSB is an active member of the IM Technical and Governance Standing Committees. PSSB also assists with federal and private partnerships with the IM Project and has established important relationships with other states and Canada. PSSB is an non-partisan support agency for the IM Project. Its Bureau Chief serves as a non-voting member of the IMPD.

Montana Army National Guard

Standardized microwave capability across Montana will establish a portion of the communications redundancy necessary for command and control of Montana Army National Guard armories across the state. Secure voice communications capabilities will provide interoperability and system survivability and redundancy for National Guard units in services to civilian authorities for homeland security and during times of disaster.

The Montana National Guard is working to achieve exclusive broadband connectivity to each of its armory sites in the state, located at Anaconda, Belgrade, Billings, Bozeman, Chinook, Glasgow, Glendive, Hamilton, Harlowton, Havre, Lewistown, Libby, Malta, Miles City and Sidney

Department of Military Affairs – Disaster and Emergency Services

Disaster and Emergency Services (DES) is the state administrative agency for homeland security funds. Because the IM Project utilizes a large percentage of homeland security funding, DES is responsible for making sure that all grant funding is spent appropriately. DES also provides support for purchasing and accounting functions.

Statewide Interoperability Executive Council

The Statewide Interoperability Executive Council (SIEC) provides policy-level direction in matters related to planning, designing and implementing guidelines, best practices, and standard approaches to solve Montana's public safety communications interoperability problems and to

leverage any opportunity in support of a statewide system, including seeking federal or other funding, for statewide interoperability.

Other State of Montana Agencies

A number of other state agencies are involved in the planning process for Interoperability Montana. The Department of Administration, PSSB, sponsored a Needs Assessment conducted by Northrop Grumman Corporation to evaluate the needs of State of Montana agencies and how those needs/resources might interface with the IM Project.

The Department of Corrections completed a separate Needs Assessment and is planning to utilize the IM system across the state as it is built out. A copy of its Needs Assessment is available in the PSSB office. In addition, the Departments of Administration, General Services, Justice, Livestock, Military Affairs, Natural Resources and Conservation, and Public Health and Human Services are evaluating their communications needs and making individual plans to utilize the IM system.

3. Federal and Private Partnerships

United States Department of Interior.

The U.S. Department of Interior has a large number of land holdings in Montana through the Bureau of Indian Affairs (BIA), Bureau of Land Management (BLM) and the National Park Service (NPS). Since the inception of the Northern Tier Interoperability Project, the DOI has been interested in the development of interoperable communications systems in Montana and has been working closely with the Northern Tier and IM representatives on issues such as site sharing and system utilization. Currently, the Northern Tier is working with Glacier National Park for the cooperative use of a site on the Blackfeet Reservation and sharing bandwidth.

The BLM and BIA have both expressed interest in sharing resources and having their law enforcement personnel on the IM system fulltime. In September 2006, the U.S, Department of Interior signed a Memorandum of Understanding to cooperate on the IM Project. A copy of this may be found at link:

http://interop.mt.gov/docs/MOU_DOI_Montana_October_2006.pdf

United States Air Force (USAF).

The IM Project will provide the United States Air Force (USAF) with a microwave backbone to connect its trunked radio sites in Central Montana to enhance communications. The USAF will have the ability to disseminate sensitive data and voice information to its responders in the field and back to command. The pathway will connect to its master controller in Colorado to provide seamless communications for Montana Air Force personnel.

The USAF requires the microwave connectivity of sites at Belgian Hill, Building 500 (Malmstrom Air Force), Cooney, Flying J, Garneill, Highwood Baldy, Judith Peak, Pacific Steel (Great Falls), South Moccasin "BLM", Sullivan Hill, Teton Ridge.

1.3 Point of contact (POC) for a full-time interoperability coordinator.

A single POC has not yet been identified by the Interoperability Montana Project (IM). Currently the executive officer and management team is being defined by the Interoperability Montana Governance Committee (IMGC) and it will make a recommendation to the Interoperability Montana Project Directors (IMPD) in the near future. The roles and responsibilities will be defined as a result of this process for the POC as will all other staffing needs. Please see Appendix A for Points of Contact.

1.4 Current communications and interoperability environment of the emergency response effort.

The IM Project has grown out of the need for improved wireless public safety communications and the success of two Concept Demonstration Projects (CDPs) initiated in Montana since 2002. The idea of a connected and compatible statewide Public Safety Land Mobile Radio System (LMR) in Montana has been discussed and studied for over 20 years. Currently, the infrastructure of state and local response communities in the state is aged and in need of improvement. Systems are built on a local basis, often with no coordination with other response groups in regional areas. Response organizations may be utilizing incompatible or legacy radio systems with other responders.

The need for LMR 'interoperability' of local, state, tribal and Federal agencies for both day-to-day and significant events is critical. Currently the State of Montana has a limited interoperability capability consisting of statewide mutual aid frequencies operating in simplex mode. For normal, localized incidents, this system works well but it falls short of interoperable communications needs for large-scale incidents.

Two projects were designated as CDPs by the State Interoperable Executive Council (SIEC). CDP#1 – Southwest Interoperability Project in Lewis and Clark County, demonstrated digital/trunking technology with a deployed, county-wide system involving all responders with a public safety radio. CDP#2 – the Northern Tier Interoperable Project, developed a strategy to build upon this proven system to a regional network, linking all public safety agencies along the Canadian border with the Lewis and Clark system. These projects formed the foundation for future statewide planning.

To develop optimum interoperability, LMR systems must be developed on a standards-based, shared system, allowing continuity for the entire local, state, tribal and Federal response community. A standard, compatible mechanism must be deployed linking agencies and consortia around the state.

Initial efforts to establish the standards based system began through the SIEC. The SIEC is comprised of local, state, tribal, federal, and other public service agency representatives. Its purpose is to provide policy level direction for matters related to planning, designing and implementing guidelines, best practices, and standard approaches to solve Montana's public safety communications interoperability problems and to leverage any opportunity in support of a statewide system, including seeking federal funding, or other funding, for statewide interoperability. Sharing of a common radio infrastructure will reduce duplications of capital investment projects, thereby reducing total radio communications cost for each participating agency. The current adoption of the Project 25 Standard (P25) by the SIEC, the IMPD, and State

of Montana Public Safety Services Bureau (PSSB) begins to address these issues, but the current approach does not define the approach to the extent necessary to ensure participation and maximum interoperability among agencies.

The process of developing and implementing a standards-based LMR radio system gained momentum with the attacks of September 11, 2001 and more recent large-scale natural disasters in the U.S. and elsewhere. The focal point of response problems during these events focused on the inability of response agencies to communicate effectively. Issues encountered included old, unreliable infrastructure, different radio systems and incompatible frequency bands.

Homeland Security priorities were established through the governor's approval of the Montana Homeland Security Plan. This plan prioritizes interoperable communications as the Number 2 priority for Montana.

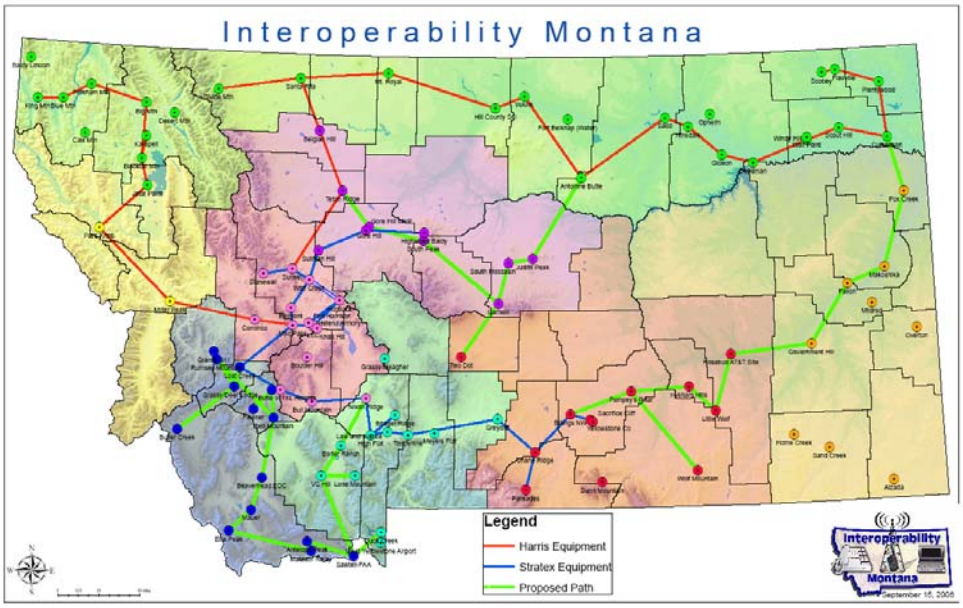
Following recent disasters, the federal government began distributing funding to local governments and states through the Department of Homeland Security, for preparedness and response activities. The State of Montana, Disaster and Emergency Services (DES) Division of the Department of Military Affairs has the responsibility for coordination of the Montana Homeland Security Task Force, (appointed by the Governor) and serves as the State Administrative Agency (SAA) for the Department of Homeland Security, Office of Domestic Preparedness (ODP).

As a result of funding priorities given to regional and statewide communications planning, Montana counties and Indian Nations formed into regional consortia for the purpose of planning and infrastructure development. These consortia were modeled after the Northern Tier Interoperability Consortium, which was established in 2004 by 12 counties and 4 tribes to address communications deficiencies for law enforcement agencies and other emergency responders along the Canadian border. This group, in partnership with the State of Montana, developed a communications plan and is currently in the final stages of completing the Northern Tier Interoperability Project, which will become operational during the Spring of 2008.

At the present time, there are nine consortia (eight regional voice and one mobile data) working to improve interoperable communications throughout the state. Seeing the need to consolidate planning and project implementation efforts, the nine consortia formed the Interoperability Montana Project in late 2005. The IM project is led by the IMPD—represented by each consortium—that develops project goals, establishes priorities and implements the project based on those priorities. In November of 2006, three State of Montana agencies were added to the IMPD (Transportation, Highway Patrol and Natural Resources and Conservation). To assist the IMPD, Northrop Grumman Corporation, through the Master Information Services (MIS) contract, serves as Project Manager.

The IM Project is currently developing communications infrastructure across the state. A summary of this is shown on the project map. This infrastructure includes improving reliability of radio transmission sites, developing trunked radio coverage for use by local, tribal, state and federal partners, developing a digital microwave system to connect sites, and providing backbone infrastructure to develop future expansion of technologies such as mobile data, remote sensing and data transmission for public entities. The success of this project will open up numerous voice and data opportunities for local public safety and State of Montana agencies across the state.

Figure 5: Infrastructure Map



1.5 Problem definition and possible solutions addressing the challenges identified in achieving interoperability within the SAFECOM Interoperability Continuum.

Project Definition and Goal

Montana has many challenges to communications interoperability. Some of these needs are focused on simple 'operability' issues. Currently, most of Montana's wireless communications infrastructure is aging and does not have up-to-date technology. In addition, wireless communications in some areas is lacking. Because of Montana's rural nature, mountainous terrain and the fact it is the fourth largest state in the U.S., with nearly 550-mile border with Canada, many regions in Montana lack basic coverage.

Most radio infrastructure is between 10-and 30-years old, is unreliable and has high maintenance costs. End user units are also aging and have limited capability, thus limiting interoperability. Most agencies operate in the VHF band in a conventional mode, relying on simplex mutual aid frequencies for interagency cooperation. Several State of Montana and Federal agencies have parallel statewide systems without standard interoperability.

SIEC Definition Statement (Public Safety Land Mobile Radio):

During the development of the locally led consortia, the Statewide Interoperability Executive Council (SIEC) adopted a policy definition for interoperability for the State of Montana, as stated below. This definition of interoperability also was approved by the IMPD.

Definition Statement:

Interoperability refers to the ability of public safety emergency responders to work seamlessly with other systems or products without any special effort. Wireless communications interoperability specifically refers to the ability of public safety officials to share information via voice and data signals on demand, in real time and when needed.

Technical Requirement:

The technology needed to meet the Interoperability Definition is that public safety radio communications in Montana will be a standards-based shared system of systems. The radio system will be a wide area system for use by public safety responders.

Through the deployment of a migration plan that identifies the steps and process for each participating agency, the system will combine P25 trunked and P25 digital / analog conventional technologies to provide interoperable communications among P25 narrowband digital trunked and existing conventional users. It will operate narrowband in the VHF frequency range and will use a protected high-capacity digital microwave backbone for voice and data interconnect traffic.

The system will provide advanced channel management for the shared use of frequencies, seamless roaming throughout the respective trunked areas (footprint) and enhanced responder safety through embedded signaling, while at the same time enhancing interoperable communications with existing legacy VHF radios. At a lower level of interoperability, the current mutual aid channels will be maintained and available for use.

While all agencies recognize the optimum goal of a trunked system, they will need to migrate to trunking in a step/phased approach. With this ultimate goal, however, all agencies will purchase equipment that is trunking capable or upgradeable to trunking. Progression through these steps will vary in a given time based on operational needs, and ultimately funding available.

This approach will allow public safety responders in Montana to exchange voice and data communications on demand, in real time during emergencies and disasters.

Consistency with SAFECOM Guidance

In addition to the adoption of Montana's Interoperability Definition and Technical Requirements, the Interoperability Montana (IM) Project has adopted the SAFECOM interoperability guidance. This continuum provides a simple and common methodology for evaluating the effectiveness of interoperable communications processes in five key areas:

- Governance
- Standard Operating Procedures
- Technology
- Training and Exercises
- Usage

It is the goal of the IM Project to move toward the optimal level of interoperability in each of these target areas. Through the grass root coordination of the IM Project and adoption of standard technologies, this goal will become reality in the future.

Objective

The objective of the IM Project is to develop an interoperable P25 Phase 1 standards-based VHF multimode radio communications system based on Federal and state communications standards in which federal, state and local public safety and emergency management representatives can operate autonomously and transition seamlessly to communicate effectively during emergencies and disasters. Such a system will provide advanced digital, secure voice and data communications and improve homeland security by providing the means by which public safety responders can communicate. It will also provide for backwards compatibility during its implementation. Migration to trunking will take place in a step/phased approach, and progression through these steps will vary in a given time based on operational needs and available funding.

The goal is to build a cost shared, reliable and effective communications system capable of providing interoperable wireless voice systems for first responders, mutual aid and emergency medical response roles to ensure the safety and well being of all Montanans.

Radio communications will be a wide-area system for use by public safety responders. Through the deployment of a migration plan that identifies the steps and process for each participating agency, the system will combine P25 trunked and P25 digital/analog conventional technologies to provide interoperable communications among P25 narrowband digital trunked and existing conventional users. All equipment must be compatible and seamlessly integrate with infrastructure equipment deployed in CDP # 1 - Southwest Interoperability Project in Lewis and Clark County and CDP # 2 - Northern Tier Interoperability Project. It will operate narrowband in the VHF frequency range and will use a protected, high-capacity digital microwave backbone for voice and data interconnect traffic. This system will emphasize flexibility and will include consideration of organizational relationships as well as detailed and prioritized schedules of equipment procurement, training and exercises necessary to fully achieve the overall objective. The primary means of acquisition will be through State of Montana term contracts and competitive bid processes.

Priorities

The main priorities will be:

- To develop a standards-based voice communications system
- To develop a shared, digital microwave system capable of supporting current needs and future trunked systems
- To plan a phased, modular approach for implementation
- To promote spectrum management
- To allow existing users to migrate seamlessly into the shared system
- To educate the legislature and key policy-makers in local, state, and federal governments in order to gain strong support and adequate funding.
- Alignment with State Information Technology Plan and Goals

Organizational Process

The organizational process for conducting the project will include:

- Project oversight and deployment with leadership from the IMPD, in cooperative agreement between the nine regional consortia and the State of Montana;
- A joint project team, consisting of technical and administrative staff from participating partners, to manage all phases of the project;
- Project technical direction from the IMTC, which advises the project directors in matters of project scope and technical issues. The IMTC is a partnership of IMPD members, State of Montana agencies and Federal user groups which utilize wireless communications in Montana;
- Professional project management of all phases contracted through Northrop Grumman Corporation off the State of Montana's MIS contract;
- Governance guidance and development through a partnership of user groups and administrative agencies forming the Interoperability Montana Governance Committee (IMGC).

Inter-relationships

The SIEC provides policy-level direction in matters related to planning, designing and implementing guidelines, best practices, and standard approaches to solve Montana's public safety communications interoperability problems and to leverage any opportunity in support of a statewide system, including seeking federal or other funding, for statewide interoperability.

Governor Martz continued the Montana Public Safety Communications Council as the SIEC by Executive Order on June 14, 2004 with appointment of both new and continuing members. Per the Executive Order, the SIEC has defined interoperability and technical requirements effective August 5, 2005. Governor Martz also endorsed by Executive Order APCO Project P25 as a standard for Montana.

Governor Schweitzer continued the SIEC by Executive Order on September 7, 2006 with the appointment of 10 voting and 9 ex officio members. The IMPD, under authority of the SIEC, is moving forward with the planning and implementation of interoperable communications in Montana.

The Senior Advisory Committee (SAC) provides input to the State Administrative Agency (SAA) on Department of Homeland Security (DHS) grants and recommends priorities for funding. The SAC, like the SIEC, works closely with the IMPD. These inter-relationships provide for a fully integrated implementation approach on technology, operations and funding. Membership on the SAC includes multiple agencies and interest groups as outlined in Exhibit B at the end of this plan.

State agencies impacted by the IM Project include the departments of Administration, Corrections, Justice, Livestock, Military Affairs, Natural Resources & Conservation, Public Health & Human Services and Transportation. Each of these agencies has communications needs and assets. Recently, each agency participated in a Montana State Agency Needs Assessment sponsored by the Public Safety Services Bureau (PSSB). Each agency is developing strategies at

varying levels of participation, to interact, assist in developing and participate in the IM Project. Several agencies will conduct migration immediately, while others will develop long-range plans. Several agencies, including the departments of Corrections, Highway Patrol and Transportation, already utilize CDP # 1 – Southwest Montana Interoperability Project in Lewis and Clark County, along with the Northern Tier Project that are precursors to the IM Project.

1.6 Tactical Interoperability Communications Plans (TICP) in the state.

The Montana designated metropolitan area Tactical Interoperability Communications Plan (TICP) was created for the Yellowstone County Region. The Yellowstone County Region was established during a kick-off meeting, which was held on February 21, 2006, at the Yellowstone County Court House, 217 North 27th Street, Billings, Montana. Various local officials were in attendance. The Yellowstone County Region was defined to include the Cities of Billings, Broadview, and Laurel, within Yellowstone County.

Yellowstone County is located in south central Montana. Billings, the county seat, is the state's largest city comprising of more than 100,000 citizens. The communities, towns, and cities within Yellowstone County are: Acton, Ballantine, Billings, Broadview, Custer, Huntley, Laurel, Pompey's Pillar, Shepherd and Worden, including Lockwood (unincorporated.) Additionally, a portion of the Crow Indian Reservation lies within Yellowstone County boundaries.

The reporting jurisdictions in the Yellowstone County Region are as follows:

- City of Billings Police Department
- City of Laurel Police Department
- Montana Highway Patrol
- Yellowstone County Sheriff's Office
- Billings Fire Department
- Emergency Medical Services
- Yellowstone City/County Health Department
- Deaconess Hospital (now Billings Clinic)
- St Vincent's Hospital

The TIC Plan is intended to apply to the jurisdictions, as defined above. Specifically, the plan is intended to be used by the first responder disciplines that would respond to the scene of an emergency, as well as other disciplines that would need to be coordinated with during the response. Please see Appendix A for the Point of Contact for the TIC Plan.

1.7 Scope and Timeframe of the Plan.

The IM Project and the State of Montana are committed to develop a Statewide Communications Interoperability Plan (SCIP) that establishes a formalized governance structure to sustain the statewide radio system and proposes a recommended continuous funding mechanism for on-going maintenance, operations and expansion of the system. The Montana Statewide Plan (SCIP) will provide a framework that addresses the critical elements for planning and implementing

statewide interoperability solutions. The elements of this plan will include the SAFECOM Continuum Framework that includes governance, standard operating procedures, training and exercises and usage of interoperable communications.

A successful plan will include:

- **Governance Structure** (finalize formal permanent structure: November 2007)
- **Identify & Secure Funding Streams** (January 2008)
- **Plans Development**
    1. Training Plan (December 2007): Please see Appendix B.
    2. Network Plan (September 2007): Please see Appendix C.
    3. Frequency Plan (September 2007): Please see Appendix D.
    4. Maintenance Plan (March 2008)
    5. Replacement Plan (March 2008)
- **Marketing & Educational Outreach**
- **Implementation Rollout**

Figure 6: SAFECOM Continuum